Claims

What is claimed is:

1. As isolated nucleic acid molecule comprising a polynucleotide selected from the group consisting of:

(a) a polynucleotide encoding amino acids from about 1 to about 188 of the amino acid sequence contained in Figure 1;

(b) a polynucleotide encoding amino acids from about 2 to about 188 of the amino acid sequence contained in Figure 1;

the polynucleotide complement of the polynucleotide of (a) or (b); and

(c) a polynucleotide at least 90% identical to the polynucleotide of (a), (b) or (c).

2. An isolated nucleic acid molecule comprising about 10 to about 564 contiguous nucleotides from the coding region identified in Figure 1.

3. An isolated nucleic acid molecule comprising about 50 to about 564 contiguous nucleotides from the coding region of the nucleic acid sequence in Figure 1.

4. An isolated nucleic acid molecule comprising about 100 to about 400 contiguous nucleotides of the coding region of the nucleic acid sequence contained in Figure 1.

5. An isolated nucleic acid molecule comprising about 10 to about 564 contiguous nucleotides from the coding region contained in Figure 1.

6. An isolated nucleic acid molecule comprising a polynucleotide encoding a polypeptide wherein, except for at least one conservative amino acid substitution, said polypeptide has an amino acid sequence selected from the group consisting of:

(a) amino acids from about 1 to about 188 of the amino acid sequence in Figure 1; and

(b) amino acids from about 2 to about 188 of the amino acid sequence in Figure 1.

7. The isolated nucleic acid molecule of claim 1, which is DNA.

8. A method of making a recombinant vector comprising inserting a nucleic acid molecule of claim 1 into a vector in operable linkage to a promoter.

9. A recombinant vector produced by the method of claim 8.

10. A method of making a recombinant host cell comprising introducing the recombinant vector of claim 9 into a host cell.

11. A recombinant host cell produced by the method of claim 10.

12. A recombinant method of producing a polypeptide, comprising culturing the recombinant host cell of claim 11 under conditions such that said polypeptide is expressed and recovering said polypeptide.

13. An isolated polypeptide comprising amino acids at least 95% identical to amino acids selected from the group consisting of:

(a) amino acids from about 1 to about 188 of the amino acid sequence contained in Figure 1; and

(b) amino acids from about 2 to about 188 of the open amino acid sequence contained in Figure 1.

14. An isolated polypeptide wherein, except for at least one conservative amino acid substitution, said polypeptide has an amino acid sequence selected from the group consisting of:

(a) amino acids from about 1 to about 188 of the amino acid sequence in Figure 1; and

(b) amino acids from about 2 to about 188 of the amino acid sequence in Figure 1.

15. An isolated polypeptide comprising amino acids selected from the group consisting of:

(a) amino acids from about 1 to about 188 of the amino acid sequence in Figure 1; and

(b) amino acids from about 2 to 188 of the amino acid sequence in Figure 1.

16. An epitope-bearing portion of the polypeptide identified in Figure 1.

17. The epitope-bearing portion of claim 16, which comprises about 5 to about 30 contiguous amino acids of the protein in Figure 1.

18. The epitope-bearing portion of claim 17, which comprises about 10 to about 15 contiguous amino acids of the protein in Figure 1.

19. An isolated antibody that binds specifically to the polypeptide of claim 15.

20. A monoclonal antibody according to claim 19.

21. A method of inhibiting apoptosis or proliferation of a cancer cell, comprising inhibiting expression of SCC-S2 in said mammalian cell.

22. The method of claim 21, wherein said mammalian cell is transformed with a vector encoding an antisense oligonucleotide corresponding tot he SCC-S2 sequence in Figure 1.

23. An antisense oligonucleotide that inhibits the expression of SCC-S2 in a mammalian cell and has a phosphodiester backbone or modified base composition.

24. The antisense oligonucleotide of claim 23 which is contained in a liposomal formulation.

25. A method of treating cancer characterized by SCC-S2 overexpression by administration of an antisense oligonucleotide ,ribozyme or small interfering RNA (SI RNA) molecule that inhibits SCC-S2 expression.

26. A method of treating cancer characterized by SCC-S2 overexpression comprising administering an antibody that specifically binds to SCC-S2.

27. A method of treating cancer characterized by SCC-S2 overexpression comprising administration of an antibody that specifically binds to SCC-S2, antisense oligonucleotide, ribozyme or small interfering RNA (SI RNA) molecule in combination with radiation, radionucleides, anticancer drugs or other biological agents.

28. A method of treating cancer characterized by SCC-S2 overexpression comprising administration of antibody that specifically binds SCC-S2, antisense oligonucleotide, ribozyme or small interfering RNA (SI RNA) molecule contained in a liposomal formulation, in combination with radiation, radionucleides, anticancer drugs or other biological agents.

29. A method of detecting cancer characterized by SCC-S2 overexpression comprising detecting the levels of SCC-S2 expression and correlating said level of expression to the presence or absence of cancer.

30. The method of claim 29 which is effected by using a cDNA that hybridizes SCC-S2 and mRNA.

31. The method of claim 29 which is effected y using an antibody that specifically binds SCC-S2.

32. A method for inhibiting cancer cell proliferation and/or metastasis in a cancer patient comprising administering an antibody that specifically binds to

SCC-S2, small molecule SCC-S2 inhibitor, or a ribozyme or antisense oligonucleotide that inhibits SCC-S2 expression.

33. A method for identifying small molecule inhibitors of the SCC-S2 protein represented by the polypeptide of Figure 1, wherein the method comprises the steps of:

(a) determining a three dimensional structure of the SCC-S2 protein;

(b) identifying an active site in the structure determined in step (a);

(c) computationally screening a database of compounds to identify molecules that fit in the active site of the protein and selecting the molecules with the highest calculated binding affinity to the protein; and

(d) testing in vitro the SCC-S2 inhibitory activity of the molecules selected in step (c) and identifying one or more SCC-S2 inhibitors.

34. The method of Claim 33, wherein determining the three dimensional structure of the SCC-S2 protein comprises determining the structure through X-ray crystallography.

35. The method of Claim 33, wherein determining the three dimensional structure of the SCC-S2 protein comprises identifying a protein of known structure that is homologous to SCC-S2 and modeling the structure of the SCC-S2 protein based on the structure of the homologous protein.

36. A method for inhibiting cancer cell proliferation and/or metastasis in a cancer patient comprising administering to the patient a therapeutically effective amount of a compound identified according to Claim 33.

37. A method for designing small molecule inhibitors of the SCC-S2 protein represented by the polypeptide of Figure 1, wherein the method comprises the steps of:

(a) determining a three dimensional structure of the SCC-S2 protein;

(b) identifying an active site in the structure determined in step (a);

(c) computationally modeling a compound that is complementary to the active site of the SCC-S2 protein; and

(d) testing in vitro the SCC-S2 inhibitory activity of the molecules selected in step (c) and identifying one or more SCC-S2 inhibitors.

38. The method of Claim 37, wherein determining the three dimensional structure of the SCC-S2 protein comprises determining the structure through X-ray crystallography.

39. The method of Claim 37, wherein determining the three dimensional structure of the SCC-S2 protein comprises identifying a protein of known structure that is homologous to SCC-S2 and modeling the structure of the SCC-S2 protein based on the structure of the homologous protein.

40. A method for inhibiting cancer cell proliferation and/or metastasis in a cancer patient comprising administering to the patient a therapeutically effective amount of a SCC-S2 inhibitor designed according to Claim 37.

41. The method of Claim 36, further comprising obtaining a tumor tissue from the patient and determining the degree of tumor growth and metastasis prior to and after administrating to the patient the SCC-S2 inhibitor identified according to Claim 33.

42. The method of Claim 40, further comprising obtaining a tumor tissue from the patient and determining the degree of tumor growth and metastasis prior to and after administering to the patient the SCC-S2 inhibitor designed according to Claim 37.